

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	09/910,422	WRIGHT ET AL.	
	Examiner	Art Unit	
	Khanh Tran	2631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed on 01/12/2006.
2. ☒ The allowed claim(s) is/are 1-8, 12-25, 30-34 and 35-38, which are renumbered as set forth in the Office action.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

1. The Amendment filed on 01/12/2006 has been entered. Claims 1-8, 12-25, 30-34 and 35-38 are pending in this Office action.

2. Claims are renumbered as shown below:

claims 12-16 renumbered as claims 9-13;  
claims 17-21 renumbered as claims 14-18;  
claims 22-25 renumbered as claims 19-22;  
claim 30-34 renumbered as claims 23-27;  
claims 35-38 renumbered as claims 28-31.

### ***Response to Arguments***

3. Applicant's arguments, see pages 15-16 under Remarks of the Amendment, filed on 10/04/2005, with respect to claim 22 under judicially-created doctrine of double patenting as being unpatentable over claim 16 of co-pending Application No. 09/910,477 have been fully considered and are persuasive after Applicants cancelled claim 16 in the co-pending Application No. 09/910,477. The rejection of claim 22 has been withdrawn. Furthermore, the objection of claims 23-25 has been withdrawn because of dependency on claim 22.

4. The rejection of claims 27-29 has been withdrawn after Applicants cancelled the rejected claims.

***Reasons for Allowance***

The following is an examiner's statement of reasons for allowance:

5. Claims 1-3 are allowed.

Regarding claim 1, claim is allowable over prior art of record because the cited references, taken individually or combination, fails to particularly disclose a predictive weight generator adapted to reduce an amount of waveshaping processing applied to a plurality of input symbol streams by a waveshaping circuit, the predictive weight generator as set forth in the application claim. The closest prior art, Doberstein et al. (US 6,424,678 B1) disclosing scalable pattern methodology for multi-carrier communication systems, either singularly or in combination, fail to anticipate or render the above limitations obvious.

6. Claims 4-8 are allowed.

Regarding claim 4, claim is allowable over prior art of record because the cited references, taken individually or combination, fails to particularly disclose a post-conditioning circuit that generates a de-cresting pulse that can decrease an amplitude of a signal peak of a composite multicarrier signal in real time, where the composite multicarrier signal includes a plurality of input symbol streams that are pulse-shaped

Art Unit: 2631

and frequency upconverted to a plurality of upconverted streams, the post-conditioning circuit as set forth in the application claim. The closest prior art, Doberstein et al. (US 6,424,678 B1) disclosing scalable pattern methodology for multi-carrier communication systems, either singularly or in combination, fail to anticipate or render the above limitations obvious.

7. Claims 12-16 are allowed.

Regarding claim 12, claim is allowable over prior art of record because the cited references, taken individually or combination, fails to particularly disclose a composite waveform de-cresting circuit that digitally generates at least one de-cresting phase shift in real time that allows a composite multicarrier signal to be generated with a decrease in an amplitude of a signal peak, where the composite multicarrier signal includes a plurality of input symbol streams that are pulse-shaped and frequency upconverted, where an application of the de-cresting phase shift decreases the amplitude of the signal peak of the composite multicarrier signal without altering an amplitude of the plurality of input symbol streams, the composite waveform de-cresting circuit as set forth in the application claim. The closest prior art, Doberstein et al. (US 6,424,678 B1) disclosing scalable pattern methodology for multi-carrier communication systems, either singularly or in combination, fail to anticipate or render the above limitations obvious.

8. Claims 17-21 are allowed.

Regarding claim 17, claim is allowable over prior art of record because the cited references, taken individually or combination, fails to particularly disclose a method of controlling at least a portion of coefficients used in a waveform shaping applied to a plurality of baseband signals and a combination thereof, where the plurality of baseband signals includes at least a first baseband signal and a second baseband signal, where the waveform shaping reduces a peak to average ratio in the combination, the method comprising the steps as set forth in the application claim. The closest prior art, Doberstein et al. (US 6,424,678 B1) disclosing scalable pattern methodology for multi-carrier communication systems, either singularly or in combination, fail to anticipate or render the above limitations obvious.

9. Claims 22-25 are allowed.

Regarding claim 22, claim is allowable over prior art of record because the cited references, taken individually or combination, fails to particularly disclose a method of digitally decreasing an amplitude of a selected portion of a composite multicarrier signal in real time, where the composite multicarrier signal includes a plurality of input symbol streams that have been pulse-shaped and frequency up-converted, the method comprising the uniquely distinct limitations "monitoring the composite multicarrier signal to identify a signal peak above a selected threshold" and "determining a first symbol stream's contribution to the detected signal peak in the composite multicarrier signal" and "generating at least a first band-limited pulse selected to destructively interfere with at least a portion of the identified signal peak, where the first band-limited pulse is

substantially limited to a frequency band allocated to the first symbol stream" and "combining the composite multicarrier signal with the at least one band-limited pulse to reduce the signal peak". The closest prior art, Cova (US 6,141,390) disclosing predistortion in a linear transmitter using orthogonal kernels, either singularly or in combination, fail to anticipate or render the above limitations obvious.

10. Claims 30-34 are allowed.

Regarding claim 30, claim is allowable over prior art of record because the cited references, taken individually or combination, fails to particularly disclose a method of digitally decreasing an amplitude of a selected portion of a composite multicarrier signal in real time, where the composite multicarrier signal includes a plurality of input symbol streams that are pulse-shaped and frequency up-converted, where the method decreases an amplitude of the selected portion of the composite multicarrier signal without modification to an amplitude of the plurality of input symbol streams, the method comprising the uniquely distinct limitations "monitoring a plurality of pulse-shaped and frequency upconverted data streams that eventually combine to the composite multicarrier signal" and "predicting a signal peak in a composite multicarrier signal that is above a selected threshold" and "estimating a first pulse-shaped and frequency upconverted data stream's contribution to the predicted signal peak" and "generating at least a first band-limited pulse selected to modulate a phase, where the first band-limited pulse is substantially limited to a frequency band allocated to the first symbol stream, where a scaling of the first band-limited pulse depends on the first pulse-shaped

and frequency upconverted data stream's contribution to the predicted signal peak" and "phase modulating the first pulse-shaped and frequency upconverted data stream according to the first band-limited pulse". The closest prior art, Cova (US 6,141,390) disclosing predistortion in a linear transmitter using orthogonal kernels, either singularly or in combination, fail to anticipate or render the above limitations obvious.

11. Claims 35-38 are allowed.

Regarding claim 35, claim is allowable over prior art of record because the cited references, taken individually or combination, fails to particularly disclose a digital waveshaping circuit that decreases an amplitude of a selected portion of a composite multicarrier signal in real time, where the composite multicarrier signal includes a plurality of input symbol streams that have been pulse-shaped and frequency upconverted, the digital waveshaping circuit comprising the uniquely distinct limitations "means for monitoring the composite multicarrier signal to identify a signal peak above a selected threshold" and "means for determining a first symbol stream's contribution to the detected signal peak in the composite multicarrier signal" and "means for generating at least a first band-limited pulse selected to destructively interfere with at least a portion of the identified signal peak, where the first band-limited pulse is substantially limited to a frequency band allocated to the first symbol stream" and "means for combining the composite multicarrier signal with the at least one band-limited pulse to reduce the signal peak". The closest prior art, Cova (US 6,141,390) disclosing predistortion in a

Art Unit: 2631

linear transmitter using orthogonal kernels, either singularly or in combination, fail to anticipate or render the above limitations obvious.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2631

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

*Phan Cong Tran* 02/01/2006

Examiner KHANH TRAN